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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,147	03/17/2004	Sethu K. Madhavan	GP-304612 (2760/165)	3953
60770 7590 04/09/2010 General Motors Corporation c/o REISING, ETHINGTON, BARNES, KISSELLE, P.C. P.O. BOX 4390 TROY, MI 48099-4390				
EXAMINER				
GHEBRETINSAE, TEMESGHIEN				
ART UNIT		PAPER NUMBER		
2611				
MAIL DATE		DELIVERY MODE		
04/09/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/802,147

Applicant(s)

MADHAVAN ET AL.

Examiner

Temesghen Ghebretinsae

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/200)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

1. It would be of great assistance to the Office if all incoming papers pertaining to a filed application carried the following items:

1. Application number (checked for accuracy, including series code and serial no.).
2. Group art unit number (copied from most recent Office communication).
3. Filing date.
4. Name of the examiner who prepared the most recent Office action.
5. Title of invention.
6. Confirmation number (See MPEP § 503).

Claims 20-42 are pending in the instant application. The final rejection mailed 4/16/09 has been withdrawn and this is non-final rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 34-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. In claim 34 the particular limitation "generating **a data signal** that includes **modulated data** and periods of silence during which **the data signal is unmodulated**" is unclear. Is the **data signal** modulated or unmodulated?

Regarding claims 35-42, the claims are rejected as being based upon a rejected parent claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 20-25,29 -39,are rejected under 35 U.S.C. 103(a) as being unpatentable over Preston in view of McDonald et al (6,122,271) new cited reference.

Regarding claim 20,34 Preston discloses a method of communicating data over a voice channel of a wireless communication system (abstract), comprising the steps of: generating (fig. 4) a periodic data signal (fig. 6, i.e. f1 & f2 are each periodic) modulated with data (fig. 4, ref. 30; fig. 6, data bits "1" and "0") and periods of silence (col. 6, lines 24-30); and sending (fig. 2, ref. 19) the periodic data signal (fig. 2, ref. 26) as a voice communication through a vocoder (fig. 2, ref. 18) and over a voice channel (fig. 2, ref. 34) of a wireless communication system. Preston discloses a method of transmitting digital data using a cellular phone (fig. 2, ref. 14) commonly utilized for the transmission of audio voice signals. Preston explicitly discloses that "a problem arises when voice communication equipment, such as the vocoder, are used for transmitting digital data as a non-voice signal." (col. 1, lines 55-63). Specifically, the vocoder may recognize the data as noise and remove it (col. 1, lines 55-63). Therefore, Preston discloses careful encoding of the data by "controlling the amplitudes, time periods, and patterns of the synthesized frequencies used to represent the binary bit values." (col. 5, lines 23-33). Particularly, Preston discloses, as broadly as claimed, the inclusion of periods of non-

data sacrificial bit transmission to prevent the vocoder from attenuating the transmission of wanted data (col. 6, lines 15-31).

Preston differs from the claimed invention in that Preston does not label or characterize the "sacrificial bits" contained in the IBS packet 70 as "period of silence". However, McDonald from the same field of endeavor describes "period of silence" as **"a period during which no significant information is present in the primary information signal"** see col.3, lines 41-47. Therefore, as broadly as claimed, a "period of silence" is considered to be "a period during which no significant information is present in the primary information signal" and Preston does disclose such particular limitation.

Regarding claim 21,35 Preston discloses the limitations of claim 20 and 34 as applied above. Further, Preston discloses that the wireless communication system is a cellular network (fig.1).

Regarding claim 22, 36 Preston discloses the limitations of claim 20 and 34 as applied above. Further, Preston discloses that the network transmission standard is CDMA (col. 4, line 54).

Regarding claim 23,37, Preston discloses the limitations of claim 20 and 34 as applied above. Further, Preston discloses generating the periodic data signal with a data sequence using frequency shift keying (fig. 6; col. 5, lines 45-50).

Regarding claim 24, 38 Preston discloses the limitations of claim 20 and 34 as applied above. Further, Preston discloses that the duration of each of the periods of silence is within the range of about 25 to 1000 milliseconds. Preston discloses that

each bit continues for duration of 10 milliseconds (col. 5, lines 65-66). Furthermore, Preston discloses that the "period of silence" determined by the sacrificial bits is four bits long (fig. 5, "sacrificial bits"). Therefore, the period of silence is 40 milliseconds.

Regarding claim 25, 39 Preston discloses the limitations of claim 20 as applied above. Further, Preston discloses receiving a first periodic data signal (fig. 4, ref. 30) and producing a second periodic data signal (fig. 4, ref. 69) by modulating the first periodic data signal with the periods of silence determined by the packet formatter (fig. 4, ref. 62) as applied in claim 20 above.

Regarding claim 29,33 Preston discloses a method of communicating data over a voice channel of a wireless communication system (abstract), wherein both data and voice are transmitted at the same time (col. 1, lines 60-65) to a call center (fig. 1, ref. 36). Furthermore, Preston discloses the remaining limitations of the claim as applied to claims 20 and 21 above.

Regarding claim 30, Preston discloses the limitations of claim 29 as applied above. Further, Preston discloses the remaining limitations of the claim as applied to claims 20 and 21 above.

Regarding claim 31, Preston in view of McDonald discloses the limitations of claim 30 as applied above. Preston does not disclose that step (a) is performed prior to step (b). Rather, Preston discloses that adding the periodic time intervals is performed before frequency shift keying. However, the reversal of the steps is not a patentably distinct step and is within the abilities of one having ordinary skill in the art. The reversal of the steps is not suggested as providing a benefit or solving a particular

problem. Furthermore, one skilled in the art would have expected the invention to work equally well in either mode of operation.

Regarding claim 32, Preston discloses the limitations of claim 29 as applied above. Further, Preston discloses that the network transmission standard is CDMA (col. 4, line 54).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 26-28,40-42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Preston in view McDonald and further in view of Gardner et al (U.S. Pat. No. 7146174; "Gardner").

Regarding claim 26,40 Preston and McDonald disclose the limitations of claim 25 as applied above. Preston and McDonald do not explicitly disclose receiving a control signal, the control signal supplying parameters for a length of the periods of silence and timing between the periods of silence; and producing the second periodic data signal by modulating the first periodic data signal based on the received control signal. However, the use of control signals is notoriously known in the art as evidenced by Gardner. Gardner discloses, in a strictly analogous field of art, using a microprocessor (fig. 13, ref. 122) to provide a rate control signal to vocoders (fig. 13, ref. 120) to control the maximum data rate of non-speech data or speech based upon

required or available energy (col. 10, lines 50-65). Therefore, as understood by one having ordinary skill in the art, it would have been obvious at the time which the invention was made that the encoders and vocoders of Preston could take control signals from a microprocessor to determine rates of speech and data because it would permit changing the rate depending upon the available bandwidth for transmission. Furthermore, it is obvious that, when the data and speech rates are updates, the silent periods would be altered to accommodate the new rates. That is, the silent periods would be adjusted accordingly.

Regarding claim 27,⁴¹ Preston discloses the limitations of claim 20 as applied above. Furthermore, Preston in view of McDonald and further in view of Gardner discloses the remaining limitations of the claim as applied to claim 26 above.

Regarding claim 28,⁴² Preston in view of McDonald and further in view of Gardner discloses the limitations of claim 27 as applied above. Furthermore, Gardner discloses determining a response to transmitted information (fig. 11, refs. 62, 66 and 68). This received "response" is combined with the information to be transmitted for reverse link rate control (col. 9, lines 19-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made that received "response" or feedback information can be utilized to perform rate control in the invention of Preston as suggested by Gardner. Moreover, this feedback may appropriately be utilized to change the length of the silence periods as applied in claim 26.

Response to Arguments

9. Applicant's arguments with respect to claims 20-42 have been considered but are moot in view of the new ground(s) of rejection.

In response to the Applicant's arguments against the application of the prior art, the Applicant's suggests that the prior art reference Preston et al (U.S. Pat. No. 7206305; "Preston") does not disclose the generation of a periodic data signal modulated with "periods of silence". The rejections below cite to Preston's column 6, lines 24-30, which state "[t]he preamble bits 73 and 79 **do not contain any of the digital data bits 29** from the data source [but] include a certain number of sacrificial bits that are not needed for detecting or encoding the MS packet 70." (emphasis added) The Examiner maintains that Preston discloses the modulation of a data signal with "periods of silence". Contrasted with Preston's "digital data bits", Preston's "sacrificial bits" do not contain any data.

Applicant asserts that Preston's sacrificial bits can not be reasonably interpreted to be "periods of silence". However, the Examiner is permitted to interpret the claimed invention reasonably broadly in view of the invention's specification. McDonald (the new cited reference) characterizes "period of silence" as "a period during which no significant information is present in the primary information signal" see col.3, lines 41-47.

Therefore, as broadly as claimed, a "period of silence" is considered to be a period of modulation without data(significant data) which is clearly anticipated by Preston.

Allowable Subject Matter

10. No claims are allowed.
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Atsmon (7,260,221) is cited to show that a method for communicating data over a channel of a wireless communication system comprising generating a data signal that includes modulated data and a periods of silence .

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temesghen Ghebretinsae whose telephone number is 571-272-3017. The examiner can normally be reached on Monday-Friday from 8 to 6. The examiner can also be reached on alternate .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammed, can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Temesghen Ghebretinsae
Primary Examiner
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/Temesghen Ghebretinsae/

Primary Examiner, Art Unit 2611

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